

REMARKS

I. INITIAL REMARKS

Claims 49-97 are pending. Claim 49 has been amended to correct a grammatical error. Claim 84 has been amended to correct a typographical error, i.e., to change “ter” to “tert.” Section 112 support for these amendments may be found in the as-filed specification and claims. Applicants submit that no new matter is added.

Applicants thank the Office for withdrawing the prior claim objections, double patenting rejections, and obviousness rejections. *See* Office Action, page 2. Applicants respond to the new claim objection and grounds of rejection raised in the pending Office Action as follows.

II. ARGUMENTS

A. The objection to claim 84 is moot

The Office objects to claim 84 as containing a typographical error. Applicants have amended claim 84 in the manner suggested by the Office. Applicants therefore submit that the Office’s objection to claim 84 is moot, and should be withdrawn.

B. The obviousness-type double patenting rejection is improper

The Office alleges that claims 49-67, 69-73, 75-77, 82, and 84 are unpatentable over claims 1-19 and 21-30 of U.S. Patent No. 7,155,094 to Donetti et al. (“Donnetti”) in view of U.S. Patent No. 4,493,807 to Vyvial et al. (“Vyvial”). *See* Office Action, page 3. Applicants respectfully disagree with and traverse this rejection for at least the following reasons.

As an initial matter, Applicants respectfully direct the Office to M.P.E.P.

§ 804(II)(B)(1), which explains that an obviousness-type double patenting rejection, if not based on a theory of anticipation, is analogous to a failure to meet the nonobviousness requirement of 35 U.S.C. §103. *See also In re Braithwaite*, 379 F.2d 594 (CCPA 1967). The M.P.E.P. further clarifies that any obviousness-type double patenting rejection should make clear “[t]he reasons **why** a person of ordinary skill in the art would conclude that the invention defined in the claim at issue . . . would have been an obvious variation of, the invention defined in a claim” of a patent. M.P.E.P. §804(II)(B)(1) (emphasis added); *see also, In re Braat*, 937 F.2d 589 (Fed. Cir. 1991).

In the present case, independent claim 49 recites, *inter alia*:

A process for manufacturing a water-resistant telecommunication cable comprising a solid and compact element housing at least one transmitting element . . . [that] comprises a water-soluble polymer material comprising:
a vinyl alcohol/vinyl acetate copolymer . . . ;
at least a first solid plasticizer . . . and a second solid plasticizer . . .
the process comprising:
continuously producing the water-soluble polymer material by separately feeding in sequence to a multi-screw extruder, in the flow direction, with the copolymer and the second solid plasticizer;
melting and mixing the copolymer and the second solid plasticizer at 170-220°C;
melting and mixing the first solid plasticizer with the second solid plasticizer and the copolymer at 140-180°C;
subsequently homogenizing the copolymer and the plasticizers at 100-150°C; and
discharging the melt, at a temperature lower than or equal to 205°C.

In contrast to pending **process** claim 49, Donetti claims a **product**, namely a “water resistant telecommunications cable comprising . . . a solid and compact element housing [that] . . . comprises a water-soluble polymer material comprising: a vinyl

alcohol/vinyl acetate copolymer . . . at least a first solid plasticizer . . . and a second solid plasticizer” Donetti, column 17, lines 54-60. Indeed, none of Donetti’s claims recite *any* process steps. This fact is admitted by the Office. See Office Action, page 3 (stating that “Donetti claims all the features of the water-soluble polymer material ***but is silent as to the process***”) (emphasis added).

Vyvial does not cure the deficiencies of Donetti. Vyvial discloses processes for the production of sheet -like structures from vinyl alcohol polymers. See Vyvial, column 1, lines 5-10. In particular, Vyvial discloses methods wherein “in a multi-screw extruder, polyvinyl alcohol is mixed with a small amount of water, this mixture is homogenized and melted, and the melt is devolatilized to remove undesirable volatile constituents, and then extruded and shaped in a conventional manner to give the desired sheet-like structure.” *Id.* at column 1, line 65-column 2 line 3.

However, Vyvial does not teach or suggest a process comprising, *inter alia*, “continuously producing” a “water-soluble polymer material by separately feeding in sequence a multiscrew extruder, in the flow direction, with” a “copolymer and” a “second solid plasticizer” as recited in independent claims 49 and 95. Indeed, Vyvial explains that it made the surprising discovery that with its process for extruding polyvinyl alcohol, “it is ***not necessary*** to use an aqueous solution or a plasticizer-containing polyvinyl alcohol, it being sufficient if a commercial polyvinyl alcohol is mixed with a small amount of water, in the extruder.” Vyvial, column 2, lines 19-24 (emphasis added); *see also id.* at column 2, lines 29-32 (stating that “[u]sing the novel process, it is possible to extrude polyvinyl alcohol even in the absence of plasticizers, thus making possible the production of substantially wider-range of polyvinyl alcohol sheeting or panels than

obtainable hitherto"). Thus, Vyvial's invention is generally drawn to a process that *avoids* the use of the plasticizer compounds recited in Donetti.

Of course, Applicants acknowledge that Vyvial discloses that additives, such as plasticizers, may be added to the vinyl alcohol polymer, and that such additives ". . . are preferably added [to an extruder] between the feed point and the melting and homogenization zone." *Id.* at column 4, lines 27-33 and lines 22-25. However, the fact remains that Vyvial does not teach or suggest the claimed method, which comprises, *inter alia*, "continuously producing . . . [a] water-soluble polymer material by separately feeding *in sequence* to a multi-screw extruder, in the flow direction, with . . . [a] copolymer and . . . [a] second solid plasticizer; melting and mixing the copolymer and the second solid plasticizer at 170-220°C; melting and mixing the first solid plasticizer with the second solid plasticizer and the copolymer at 140-180°C; [and] subsequently homogenizing the copolymer and the plasticizers at 100-150°C . . ." as recited in independent claim 49. Indeed, Vyvial is silent with respect to the *sequential* addition of first and second plasticizers within the scope of claim 49 to a multi-screw extruder, much less specifically controlling the temperature at which such plasticizers are added.

Further, Vyvial provides no information that would suggest to one of ordinary skill in the art the importance of controlling the sequence and temperature in which plasticizers in accordance with claim 49 are added to a polyvinyl alcohol during extrusion, much less that exercising such control will have any beneficial result. Rather, it was Applicants who discovered that such parameters have a significant impact on various properties of the extruded material, such as plasticizer weight loss, bubble formation, and the presence of unmelted crystalline areas. *See* as-filed specification,

page 25, Tables 5 and 6. Since the cited art does not recognize those variables as being result effective, the Office is precluded from arguing that it would have been obvious to optimize such variables. See M.P.E.P. § 2144.05(II)(B) (“A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.”) In this very context, the M.P.E.P. explains that “[o]bviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established.” M.P.E.P. § 2144.02(V) (following discussion of *In re Antoine*’s finding of no obviousness since prior art did not recognize parameter, and therefore, could not optimize it.)

Since Vyvial **fails** to teach or suggest a process comprising the elements recited in pending claim 49 , it cannot cure the deficiency of Donetti’s **product** claims to teach or suggest such **processing** elements. Moreover, one of ordinary skill would understand Vyvial as **teaching away** from the claimed method (which utilizes plasticizers), when it states that the use of plasticizers “is not necessary[,]” and that “[u]sing the novel process, it is possible to extrude polyvinyl alcohol even in the absence of plasticizers....” *Id.* at column 2, lines 29-32. For at least these reasons, one of ordinary skill would see no reason to manufacture Donetti’s cables via Vyvial’s process. Further, even if, *arguendo*, one of ordinary skill in the art were to manufacture Donetti’s cables via Vyvial’s process, the resultant process would still fail to include each and every element of the pending claims.

The burden is therefore on the Office to provide a tenable rationale explaining **why** one of ordinary skill would see any reason to modify or combine Donnetti and Vyvial in an attempt to arrive at the claimed invention. Since the Office has failed to meet its burden in this case, Applicants submit that the Double Patenting rejection of claims 1-19 and 21-30 is improper, and should be withdrawn.

C. The 35 U.S.C. § 103(a) rejections are improper

**1. 35 U.S.C. § 103(a) rejection of claims 49-81
in view of Anelli and Vyvial**

The Office rejects claims 49-81 under 35 U.S.C. § 103(a) as being unpatentable over a combination of U.S. Pre-Grant Publication No. 2002/0041744 to Anelli et al. (“Anelli”) in view of Vyvial. Applicants respectfully disagree with and traverse this rejection for at least the following reasons.

The Office bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. See M.P.E.P. § 2142. In *KSR Int’l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (2007), the Supreme Court confirmed that the “framework for applying the statutory language of §103” is still based on its landmark decision in *Graham v. John Deere Co. of Kansas City*, 148 U.S.P.Q. 459 (1966). Under *Graham*, four factors must be considered when determining whether an invention is obvious: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) secondary considerations. 148 U.S.P.Q. at 467. The obviousness or non-obviousness of the claimed invention is then evaluated in view of the results of these inquiries. See *Graham*, 148 U.S.P.Q. 467; *see also KSR*, 82 U.S.P.Q. 2d at 1388. Implicit in this

analysis is the requirement that the Office show that each and every element of the rejected claims is disclosed in the prior art. M.P.E.P. § 2143.03.

In the instant case, the Office has not established a *prima facie* case of obviousness, at least because Anelli and Vyvial, whether considered alone or in combination, do not teach or suggest a process having each and every element of the pending claims. In particular, Anelli and Vyvial fail to teach or suggest a process including each and every element of independent claim 49.

The relevant processing elements of claim 49 reproduced above in section II(B), and for the sake of brevity are not repeated herein. As admitted by the Office, “Anelli is silent...” as to these processing elements. *See* Office Action, page 5.

Vyvial does not correct the deficiencies of Anelli for essentially the same reasons it does not correct the deficiencies of Donetti. *See Supra* section II(B). That is, like Anelli, Vyvial does not teach or suggest a process comprising, *inter alia*, “continuously producing” a “water-soluble polymer material by separately feeding in sequence a multiscrew extruder, in the flow direction, with” a “copolymer and” a “second solid plasticizer; melting and mixing the copolymer and the second solid plasticizer at 170-220°C; [and] melting and mixing the first solid plasticizer with the second solid plasticizer and the copolymer at 140-180°C. . . .” and as recited in independent claim 49.

Further, Vyvial explains that in its process for extruding polyvinyl alcohol, “it is *not necessary* to use an aqueous solution or a plasticizer-containing polyvinyl alcohol, it being sufficient if a commercial polyvinyl alcohol is mixed with a small amount of water, in the extruder.” Vyvial, column 2, lines 1924; *See also id.* at column 2, lines 29-32

(stating that “[u]sing the novel process, it is possible to extrude polyvinyl alcohol even in the absence of plasticizers, thus making possible the production of substantially wider-range of polyvinyl alcohol sheeting or panels than obtainable hitherto”). Thus, one of ordinary skill in the art would understand Vyvial as generally ***teaching away*** from the use of plasticizers.

Moreover, while Vyvial mentions that during extrusion of a polyvinyl alcohol, plasticizers may be added “between the feed point of the vinyl alcohol polymer and the melting and homogenization zone” of the extruder, it provides no information that would suggest to one of ordinary skill in the art the importance of controlling the parameters (e.g., sequence and temperature) for adding plasticizers within the scope of the pending claims, much less that such exercising such control will have any beneficial result. Rather, it was Applicants who discovered that the such parameters have a significant impact on various properties of the extruded material, such as plasticizer weight loss, bubble formation, and the presence of unmelted crystalline areas. See as-filed specification, page 25, Tables 5 and 6.

Again, since cited art does not recognize those variables, the Office is precluded from arguing that it would have been obvious to optimize such variables. See M.P.E.P. § 2144.05(II)(B). Further, in this very context, the M.P.E.P. explains that “[o]bviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established.” M.P.E.P. § 2144.02(V)

For at least the foregoing reasons, Vyvial *fails* to disclose a process comprising the elements recited in pending claim 49, and cannot cure the Anelli’s failure to teach or suggest the claimed *processing* elements. Moreover, one of ordinary skill would

understand Vyvial as *teaching away* from the claimed method (which utilizes plasticizers), when it states that the use of plasticizers “is not necessary[,]” and that “[u]sing the novel process, it is possible to extrude polyvinyl alcohol even in the absence of plasticizers” *Id.* at column 2, lines 29-32.

Accordingly, one of ordinary skill would see no reason to manufacture Anelli’s cables via Vyvial’s process. But even if, *arguendo*, one of ordinary skill in the art were to manufacture Anelli’s cables via Vyvial’s process, the resultant process would still fail to include each and every element of the pending claims, at least because neither Anelli nor Vyvial teach or suggest the claimed parameters for adding a first and second solid plasticizer during extrusion.

The burden is on the Office to provide a tenable rationale explaining *why* one of ordinary skill would see any reason to modify or combine Anelli and Vyvial in an attempt to arrive at the claimed invention. Since the Office has failed to meet its burden in this case, Applicants submit that the 35 U.S.C. § 103(a) rejection of claims 49-84 as unpatentable over Anelli in view of Vyvial is improper, and should be withdrawn.

2. The other 35 U.S.C. § 103(a) rejections are improper

The Office rejects: claims 82-84 and 95-97 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Anelli and Vyvial, further in view of U.S. Patent No. 6,228,495 to Lupia et al. (“Lupia”); and claims 85-94 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Anelli in view of Vyvial, further in view of U.S. Patent No. 5,051,222 to Marten et al. (“Marten”). Office Action, pages 8 and 9.

Applicants respectfully disagree with and traverse these rejections for the same reasons stated above in section II(C)(1) with respect to the combination of Anelli and Vyvial alone. While Lupia and Marten may or may not disclose other aspects of the claimed invention, Applicants do not believe that they correct the failure of Anelli and Vyvial to teach or suggest each and every element of independent claims 49 and 95, which recites language similar to claim 49, as discussed above.

For at least the foregoing reasons, Applicants submit that the 35 U.S.C. §103(a) rejections in view of Anelli and Vyvial in combination with Lupia or Marten are improper, and should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims. If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, he is respectfully invited to contact Applicants' undersigned counsel at 202.408.4000.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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